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ABSTRACT

A study examined 58 home economics education textbooks in terms of reading difficulty, writing style, and interest level for special population learners. The objective was to identify texts, using six different readability formulas that were significantly more difficult and provided educational obstacles to special populations in their preparation for daily living skills and home economics careers. Likewise, the relatively easiest texts were identified for consideration in text evaluation and selection procedures and student placement. The six readability formulas were Flesch, Kincaid-Flesch, Dale-Chall, Gunning, Raygor, and Fry. A human interest index measured the personal appeal of reading passages by assessing the number of personally relevant words and sentences. The writing style of a book was evaluated by determining the percentage of passive sentences in the selected passage. A percentage greater than 30 percent indicated a formal writing style typical of technical and scientific writing that added a dimension of reading difficulty. Three passages of 100 words or more, ending with a complete sentence were selected from the first chapter, the final chapter, and the approximate middle page of the book. Results found the formulas were correlated and effective in discriminating texts of relative ease or difficulty. Writing style and human interest were not strong discriminating factors in identifying appropriate texts for students with low literacy skills. (Four tables are appended.) (YLB)

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ED 366 807

Analysis of Readability and Interest of Home Economics Textbooks for Special Needs Learners

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The selection of a textbook is a critical decision to be made by the home economics educator. Although teachers use a variety of teaching strategies and curriculum materials, textbooks remain an important source of information. The more suited reading material is to the varied abilities and needs of students, the more likely the students are to retain concepts necessary for classroom use and transfer this knowledge to the workplace and daily living skills.

The 58 secondary home economics textbooks included in this study have been evaluated based on readability, human interest, and writing style.

Readability. The readability of a textbook refers to the ease of comprehension of the reading material. Numerous readability procedures are available. Although there are limitations to the use of readability formulas, they can provide the teacher with valuable information regarding the suitability of the reading level of textbooks for specific students. The six formulas selected for this evaluation are: Flesch, Kincaid-Flesch, Dale-Chall, Gunning, Raygor, and Fry. The formulas report information in grade level equivalencies. For example, a textbook with a readability score of 9 is appropriate for a student who has completed the ninth grade.

All readability formulas use grade level equivalencies but arrive there by different methods. Flesch, Fry and Kincaid-Flesch grade levels are indices based on the average number of words per sentence and the average number of syllables per 100 words. Standard adult usage averages approximately 17 words per sentence and 147 syllables per 100 words (Microsoft Corporation, 1991-92b). A Kincaid-Flesch score of 7-8 is the range of "standard" writing (Microsoft Corporation, 1991-92b). The Gunning index is based on average sentence length multiplied by a constant and number of multisyllabic words per sentence. Here the proportion of multisyllabic words is considered a relative index of reading difficulty. The Dale-Chall and Raygor formulas utilize comparative information. The Dale-Chall consists of a 3,000 word list and calculates difficulty based on the percentage of words not on this list as well as the average sentence length. The Raygor reports grade level by combining average sentence length with the percentage of words that have more than three syllables.

Human Interest. This index attempts to measure the personal appeal of reading passages by assessing the number of personally relevant

words and sentences contained in the reading material. Scores range from 0 to 100. Higher scores (70 to 90) indicate exciting, engaging reading material exemplified by slick magazines and comics. Lower scores (10 to 20) indicate "dull" material such as scientific and academic literature.

Writing Style. The writing style of a book is evaluated by determining the percentage of passive sentences in the selected passage. A high percentage (greater than 30%) indicates a formal writing style typical of technical and scientific writing, thus adding a dimension of reading difficulty when a student is unfamiliar with the concepts presented or has low interest in the subject.

Numerous readability procedures are available (Klare, 1974-75) and each has their own advantages and disadvantages as well as task focus (Allen, 1985). Although criticism of readability formulas have focused on the restrictive variables used as the basis of calculations (Maddux & Candler, 1987), the predictive validity in terms of reading comprehension has been substantiated (Guthrie, 1972).

Value of Readability

Despite the controversy surrounding readability versus learnability, readability remains a potentially useful tool in selecting the relatively simplest textbook in terms of ease of reading.

Efforts to utilize readability analysis in vocational education have attempted to closely match student's reading ability with a precise measure of reading difficulty provided by one, or two readability measures. This accuracy of matching is not possible because the formulas vary in the reading components measured in contrast to differing factors from reading tests given to students.

Welch & McCracken (1983) found that teachers often underestimate the reading difficulty of materials. When technical concepts are adequately covered, easier-to-read text does not appear to impede the comprehension of a higher reading student, while it may make the information more accessible to a special needs learner. However, the objective of text analysis for special needs vocational learners is not to provide an exact match of reading level between text and student, but rather, to identify the lowest reading level available among texts otherwise

suitable in content. This task can be accomplished if all text sources are measured with the same readability formula and if measures are seen as relative rather than specific indices of difficulty.

A reliance on published readability ratings provided by commercial publishers is often a source of frustration since these scores are derived from single, often uncited, formulas without the provision of comparative information (Northwest Regional Educational Laboratory, 1989). For comparative purposes, a much broader analysis of available texts is needed to provide home economics educators and their special education colleagues with reading difficulty information.

The purpose of the study was to evaluate 58 representative home economics education textbooks in terms of reading difficulty, writing style, and interest level for special populations learners. The objective was to identify texts, using six different readability formulas, that were significantly more difficult, and provided educational obstacles to special populations in their preparation for daily living skills as well as for home economics careers. Likewise, the relatively easiest texts were identified for consideration in text evaluation and selection procedures and student

placement. The texts were also analyzed with measures of writing style and human interest in order to consider a wider range of selection attributes.

Fifty-eight books were evaluated in this study. The most widely used books were identified by using the criteria of state adoption for secondary use. The education departments of twenty states (AK, AR, AZ, CA, CT, GA, HI, IL, KS, KY, MA, ME, MS, MT, ND, NM, NY, OH, SC, VA) from all regions of the United States were contacted by telephone to obtain information regarding state approved texts in vocational education. Of these twenty states, six (AR, GA, KY, MS, SC, TX) had such lists available. Local adoption of texts was the practice in the remaining states contacted. A master list was made of all texts listed and a prioritized search was made of those texts used by the highest number of states.

Three passages of 100 words or more, ending with a complete sentence, were selected from the first chapter (around page 12), the final chapter (three pages from end), and the approximate middle page of the book (last text page divided by two) as recommended by Rush (1985).

Only explanatory text was included in the sample. The same samples were entered into two computer programs for data analysis.

Results found that the formulas are correlated and are effective in discriminating textbooks of relative ease or difficulty.

Writing style and human interest were not strong discriminating factors in identifying appropriate texts for students with low literacy skills.

However, when attempting to involve students with low reading or interest, these factors may be considered valuable.

Attempted to look at the data:

If readability is high and

If writing style (passive) is high and

If human interest is low, then eliminate the book.

Table 1.
Reading levels and means for food and nutrition texts

AUTHOR	TITLE	FLESCH GRADE	KINCAID FLESCH	DALE CHALL	GUNNING	RAYGOR	FRY	$\bar{X}$	SD	FLESCH EASE	HUMAN INTEREST	PASSIVE %
Duyff, Cronan & Atwood (1987)	*First Foods*	7*	4.4*	15*	7.7*	3*	1*	6.35	4.91	79.6	28.42	0
Haines (1988)	*Food Preparation*	12.8	10	14	13.3	11	11	12.01	1.57	50.4	0	64**
Kowtaluk (1986)	*Discovering Nutrition*	7.7*	6.4*	9.5	9.3	7	7	7.81	1.29	72.0	25.96	20
Kowtaluk & Kaplan (1990)	*Food for Today*	10.4	8.2	9.5	11.1	9	10	9.70	1.09	58.5	30.29	20
Largen & Bence (1992)	*Guide to Good Food*	8.4*	7.5*	9.5*	10	9	8	8.73	.94	65.7	10.90	37**
Medved (1988)	*The World of Food*	10.2	9.3	14	12.2	12	10	11.28	1.76	59.0	17.27	5
Neuberry & Fisher (1986)	*The Food Book*	11.6	8.9	11.5	11.1	12	10	10.85	1.17	54.4	6.80	20
Ohl, Duyff, & Hasler (1981)	*Guide to Modern Meals*	13.5*	10.8*	11.5	13.9*	12	11	12.11	1.30	46.1	15.7	21
Pepper (1991)	*Food Service Skills Series*	7.9*	6.7*	7.5*	9.5	6*	7	7.43	1.20	70.8	16.4	17
Ray & Lewis (1988)	*Exploring Professional Cooking*	8.0*	7.1*	9.5*	9.6	6*	7	7.86	1.45	69.2	22.64	20
Tuckwell (1988)	*Food Choices: Eating for Health*	14.9*	11.9*	14	14.6*	15*	16*	14.40	1.38	37	7.27	20
Vernon (1988)	*Foods*	12.3	10.8*	11.5	13.5*	10	11	11.51	1.23	52.1	14.58	11
	$\bar{X}$	10.39	8.50	11.41	11.31	9.33	9.08			59.56	16.35	21.75
	SD	2.62	2.18	2.39	2.17	3.36	3.57			12.32	9.27	16.29

* = +/- 1SD; ** PASSIVE STYLE IS >33%

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Table 2.
Reading levels and means for clothing and textile texts

AUTHOR	TITLE	FLESCH GRADE	KINCAID FLESCH	DALE CHALL	GUNNING	RAYGOR	FRY	$\bar{X}$	SD	FLESCH EASE	HUMAN INTEREST	PASSIVE %
Johnson & Foster (1990)	*Clothing: Image & Impact*	8.3	8.2	9.5	10.4	8	8	8.73	.99	66.7	29.10	28
Liddell (1991)	*Clothes & Your Appearance*	8.7	7.2	11.5	9.2	10	9	9.26	1.42	62.6	33.92	17
Priest & Pullen (1990)	*Guide to Clothing*	8.3	7.2	9.5	10.6	7	7	8.18	1.35	66.3	34.9	21
Stone (1991)	*Fashion Merchandising: An Introduction*	14*	12.4*	14*	16.2*	15*	17*	14.85	1.63	38*	2.24*	23
Vanderhoff (1990)	*Clothing: Concepts & Construction*	8.5	8.4	9.5	11.4	8	8	8.96	1.31	64.6	29.18	15
Webb Lupo & Lester (1987)	*Clothing Decisions*	8.6	7.0	9.5	9.6	10	8	8.78	1.13	63.4	27.34	13
Weber (1990)	*Clothing: Fashion, Fabrics, Construction*	8.3	7.4	9.5	9.4	8	8	8.43	.81	67	10.3	17
Wolfe (1989)	*Fashion!*	8.6	7.3	11.5	10	10	7	9.06	1.74	63.6	16.96	11
	$\bar{X}$											
	SD											

* = +/- 1SD; ** PASSIVE STYLE IS >33%

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Table 3.
Reading levels and means for consumer economics texts

AUTHOR	TITLE	FLESCH GRADE	KINCAID FLESCH	DALE CHALL	GUNNING	RAYGOR	FRY	$\bar{X}$	SD	FLESCH EASE	HUMAN INTEREST	PASSIVE %
Bonnice & Bannister (1986)	*Developing Consumer Attitudes*	10.8	9.0	11.5	11.5	15	10	11.30	2.04	57.2	18.17	14
Brenneke & Hamill (1985)	*Decisions: Making Personal Economic Choices*	8.7*	7.5*	9.5*	10.1	8*	8*	8.63	.99	62.4	46.14	11
Campbell (1988)	*The Confident Consumer*	14.2	11.2	14	15.2	13	15	14.10	1.50	41.6	14.33	4
Craig & Miles (1992)	*Careers in Home Economics*	8.7*	8.2	9.5*	12	8*	8*	9.06	1.54	62.1	25.54	8
Craig (1987)	*Homes with Character*	13.1	9.7	11.5	12.2	12	11	11.58	1.16	49.2	6.05	16
Green (1988)	*Consumers in the Economy*	15	12.4*	15*	14.5	13	17*	14.48	1.83	36.5	10.9	15
Lewis (1990)	*Housing Decisions*	7.6*	5.98	9.5*	7.0*	7*	7*	7.33	1.19	73	25.90	16
Lowe, Malouf, Jacobson, & Nies (1990)	*Consumer Education & Economics*	14.1	10.9	14	14.8	15	14	13.80	1.48	42.5	6.16	0
Ryan (1986)	*Personal Business Management*	14	11.0	14	13.8	15	14	13.63	1.35	42.9	9.69	38
Ryan (1990)	*Managing Your Personal Finances*	13.4	10.9	14	13.5	13	12	12.80	1.14	47.1	21.80	40**
Swanson (1987)	*Consumer Challenges & Issues*	14.6	11.7	15*	16.1*	15	15	14.56	1.49	39.3	20.59	14
Wyllie, Lang, Green & Warmke (1988)	*Consumer Economics*	14.2	12.9*	14	17.6*	15	14	14.61	1.60	41.8	3.73	18
	$\bar{X}$	12.36	10.10	12.62	13.19	12.58	12.08			49.63	17.41	16.16
	SD	2.66	2.09	2.18	2.85	3.14	3.26			11.40	11.85	11.91

* = $\bar{x}$ / 1SD; ** PASSIVE STYLE IS >33%

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Table 4. Reading levels and means for child and family development texts

AUTHOR	TITLE	FLESCH GRADE	KINCAID FLESCH	DALE CHALL	GUNNING	RAYGOR	FRY	$\bar{x}$	SD	FLESCH EASE	HUMAN INTEREST	PASSIVE %
Ahendroth (1986)	*Changes & Choices*	7*	5.0*	7.5*	5.8*	6*	6*	6.21	.89	79.2	54.96	3
Brisbane (1990)	*The Developing Child*	10.3	9.1	9.5	12.1	8	9	9.66	1.40	58.9	38.4	20
Chamberlain (1990)	*Teen Guide*	7.9	6.9	9.5	9.3	9	7	8.26	1.16	70.2	14.53	22
Decker (1988)33	*Children: The Early Years*	8.6	8.1	11.5	10.8	8	9		1.6	63.7	9.90	27
Draper & Draper (1983)	*The Caring Parent*	8	7.4	9.5	9.7	8	7	8.26	1.10	69.4	34.44	4
Draper, Ganong, & Goodell (1987)	*See How They Grow*	8.6	7.8	11.5	11.3	10	8	9.53	1.63	63.1	32.71	12
Foster, Hogan, Herring & Gieseking-Williams (1990)	*Creative Living*	8.0	7.1	9.5	9.1	8	8	8.28	.87	69.1	30.29	11
Henderson (1985)	*Dimensions of Life*	14.5*	12.4*	14*	16.3*	15*	14*	14.36	1.28	39.8	15.8	35
Herr (1990)	*Working with Young Children*	11	8.8	11.5	10.2	11	10	10.41	.96	56.6	14.54	21
Hildebrand (1990)	*Parenting and Teaching Young Children*	11.7	9.5	11.5	12.6	10	10	9.21	3.96	54.2	23.01	9
Judge (1991)	*Life Management*	8.2	8	9.5	10.8	8	8	8.75	1.16	67	25.45	15
Kelley & Eubanks (1988)	*Today's Teen*	7*	6.3*	9.5	8.4*	10	7	8.03	1.50	73.2	21.22	25
Leavenworth, Hendricks, Gay, Harriman, & Kreinin (1985)	*Family Living*	13.3*	10	11.5	12.0	11*	12*	11.63	1.10	47.6	19.38	15
Marhoefer & Vadnais (1988)	*Caring for the Developing Child*	8.6	8.1	11.5	11.2	10	10	9.90	1.35	63.1	3.73	4
Mawhinney & Peterson (1986)	*Child Development: Parenting & Teaching*	12.1	9.8	9.5	12.6	12*	10	11.00	1.37	52.7	38.77	9
Oppenheim (1988)	*Living Today*	8.4	7.5	7.5*	11.1	7	7	8.08	1.56	65.3	32.71	17
Parnell (1988)	*Skills For Everyday Living*	10.3	8.7	11.5	10.6	10	10	10.18	.91	58.8	13.96	13
Rieken & House (1986)	*Succeeding On Your Own*	8.5	8.5	9.5	11.2	7	8	8.78	1.43	64.6	31.5	19
Riker & Brisbane (1992)	*Married & Single Life*	13.5*	9.8	11.5	12.7	11	12*	11.75	1.30	46.3	16.06	7
Ryder (1985)	*Parents and their Children*	10	8.5	11.5	11.1	8	9	9.68	1.42	59.6	18.38	21
Ryder (1987)	*Contemporary Living*	11.9	8.7	11.5	11.5	11*	11	10.93	1.14	53.6	33.92	18
Sasse, Hagy, Kahn & Brinkley (1987)	*Life Skills*	7.9	6.7*	9.5	8.9*	6*	7	7.66	1.34	70.0	12.41	20
Thompson & Faleis Priest (1987)	*Lifeplans*	12.5*	9.1	11.5	11.5	9	11.5*	10.85	1.44	51.5	12.22	22
Thompson & Jax (1989)	*Teens in Action*	7.2*	4.7*	7.5*	7.0*	4*	4*	5.73	1.67	77.3	37.07	2
Thompson, Jax & Kiser (1987)	*Resources for Living*	8.6	6.9	7.5*	9.3	8	8	8.05	.83	63.7	37.56	6
Westlake & Westlake (1992)	*Relationships and Family Living*	12.6*	10.4*	11.5	14.2*	10	12*	11.78	1.45	51.2	18.17	15
	$\bar{x}$	9.85	8.22	10.28	10.81	9.03	9.01			61.14	22.94	15.34
	SD	2.24	1.66	1.65	2.14	2.23	2.24			9.73	12.07	7.96

* = +/- 1SD; ** PASSIVE STYLE IS >33%

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